

THAT WHICH IS CLAIMED IS:

1. A process comprising polymerizing ethylene, or polymerizing ethylene and at least one other olefin, to produce a polymer,

wherein said polymerizing is conducted in a polymerization zone, and

wherein said polymerizing is conducted using a catalyst and a cocatalyst, and

wherein said catalyst comprises chromium on a support, and

wherein the amount of said chromium on said support is from about 0.5 to 5 weight percent, and

wherein said support comprises silica, in major part, and

wherein the amount of titanium in said support is greater than about 3.5 to about 10 weight percent based on the weight of said support, and

wherein said support has a surface area from about 400 to about 800 square meters per gram, and

wherein said support has a pore volume from about 1.8 to about 4 cubic centimeters per gram, and

wherein said catalyst has been activated at a temperature in the range of about 600°F to about 1100°F in the presence of an oxidizing ambient,

and

wherein said cocatalyst is an organoboron compound.
2. A process according to claim 1 wherein said polymerizing is conducted under slurry polymerization conditions.

3. A process according to claim 2 wherein said polymerizing is conducted at a temperature from about 195°F to about 225°F.
4. A process according to claim 3 wherein said polymerizing is conducted at a pressure from about 500 psia to about 700 psia.
5. A process according to claim 4 wherein said amount of said chromium on said support is in the range of about 1 to about 4 weight percent.
6. A process according to claim 5 wherein said amount of said titanium on said support is in the range of about 4 to about 8 percent.
7. A process according to claim 6 wherein said support has a surface area from about 425 to about 700 square meters per gram.
8. A process according to claim 7 wherein said support has a pore volume from about 1.9 to about 3 cm³/g.
9. A process according to claim 7 wherein said catalyst is activated in the presence of an oxidizing ambient at a temperature from about 700°F to less than 1100°F.
10. A polymer produced in accordance with claim 1.
11. A polymer produced in accordance with claim 9.